

REMARKS

Applicant respectfully requests consideration of the subject application as amended herein.

Applicant reserves all rights with respect to the applicability of the doctrine of equivalents.

Status of Claims

Claims 1, 4, 5, 7, 20, 22-24, and 27 are pending in this application. Claims 1, 4, 5, 7, 20, 22-24, and 27 have been rejected.

Claims 1, 20, and 24 have been amended. The amended claims are supported by the specification. No new matter has been added.

Summary of Claim Rejections

Claims 1 and 20 have been rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 4, 5, and 7 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,463,246 of Matsunami ("Matsunami").

Claims 20, 22-24, and 27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsunami in view of U.S. Patent No. 5,426,072 of Finnila ("Finnila").

Rejections under 35 U.S.C. § 112

Claims 1 and 20 have been rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Office Action states that claim 1 has insufficient antecedent basis for the limitation "the contact" in line 11 of claim 1. This phrase has been replaced with the phrase "a contact." Also, the phrase "a contact" in line 12 of claim 1 has been replaced with the phrase "the contact" in reference to "a contact" in line 11.

Applicant submits that claim 1, as amended, does have a sufficient antecedent basis for the phrase “a contact” in line 11. Consequently, the rejection of claim 1 under 35 U.S.C. § 112, second paragraph, is moot. Accordingly, applicant respectfully requests withdrawal of the rejection of claim 1 under 35 U.S.C. § 112, second paragraph.

The Office Action states that claim 20 has insufficient antecedent basis for the limitation “the first contact” in lines 10 and 11 of claim 20. This phrase has been replaced with the phrase “a first contact.” Also, the phrase “a first contact” in line 12 of claim 20 has been replaced with the phrase “the first contact” in reference to “a first contact” in line 11. Applicant submits that claim 20, as amended, does have a sufficient antecedent basis for the phrase “a contact” in lines 10-11. Consequently, the rejection of claim 20 under 35 U.S.C. § 112, second paragraph, is moot. Accordingly, applicant respectfully requests withdrawal of the rejection of claim 20 under 35 U.S.C. § 112, second paragraph.

Rejections under 35 U.S.C. § 102(b)

Claims 1, 4, 5, and 7 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,463,246 of Matsunami (“Matsunami”).

Claim 1 recites a die that includes a contact positioned on top of a dielectric layer that is positioned on top of a semiconductor support layer. A via passes through the dielectric layer and semiconductor support layer. The via includes a first end positioned in the dielectric layer and a second end positioned in the semiconductor support layer. The second end of the via includes a shaft and a semi-cone shape that increases the via contact area at the first end for coupling the via to the contact. Claim 1 includes the limitations “a second end of the via is positioned in the semiconductor support layer” and “wherein the second end of the via includes a shaft in the semiconductor support layer.”

Matsunami discloses a large scale semiconductor apparatus which includes at least one semiconductor chip having electrodes. (Matsunami, Abstract). Referring to Figure 20, Matsunami discloses a stack of films including an insulating film 244, protective film 243,

insulating film 241, silicon substrate 245, and adhesive layer 247. A via filled with conductive body 248 passes through the stack of films. Thus, Matsunami discloses a via with a first end positioned in insulating film 244 and a second end positioned in adhesive layer 247. The silicon substrate 245 has a single constant taper or slope.

By contrast, Matsunami does not disclose a via with a second end positioned in silicon substrate 245. Matsunami also does not disclose a via with a shaft positioned in the silicon substrate 245. Matsunami does not disclose “a second end of the via is positioned in the semiconductor support layer” and “wherein the second end of the via includes a shaft in the semiconductor support layer.” (claim 1).

Therefore, Matsunami does not disclose each and every limitation of claim 1. As such, claim 1, as amended, is not anticipated by Matsunami under 35 U.S.C. §102(b).

It is submitted that claims 4, 5, and 7 are also not anticipated by Matsunami given that claims 4, 5, and 7 depend from and include the limitations of independent claim 1.

Rejections under 35 U.S.C. § 103(a)

Claims 20, 22-24, and 27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsunami in view of U.S. Patent No. 5,426,072 of Finnila (“Finnila”).

Independent claim 20, as amended, includes the limitations “the second end positioned in the semiconductor support layer” and “wherein the second end includes a shaft and an enlarged end in the semiconductor support layer.” Independent claim 24, as amended, includes the limitations “the second end positioned in the semiconductor support layer” and “wherein the second end includes a shaft in the semiconductor support layer.” Thus, independent claims 20 and 24, as amended, include limitations similar to the limitations in claim 1 noted above.

It is submitted that Finnila fails to cure the deficiencies of Matsunami noted above with respect to claim 1 and, therefore, independent claims 20 and 24 are patentable over the combination of cited references.

It is submitted that claims 22 and 23 are also patentable over Matsunami in view of Finnila under 35 U.S.C. § 103(a) given that claims 22 and 23 depend from and include the limitations of independent claim 20.

It is submitted that claim 27 is also patentable over Matsunami in view of Finnila under 35 U.S.C. § 103(a) given that claim 27 depends from and includes the limitations of independent claim 24.

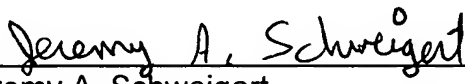
In view of the foregoing amendments and remarks, applicant respectfully submits that all of the rejections and objections have been overcome.

Authorization is hereby given to charge our Deposit Account No. 02-2666 for any charges which may be due.

Respectfully submitted,

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